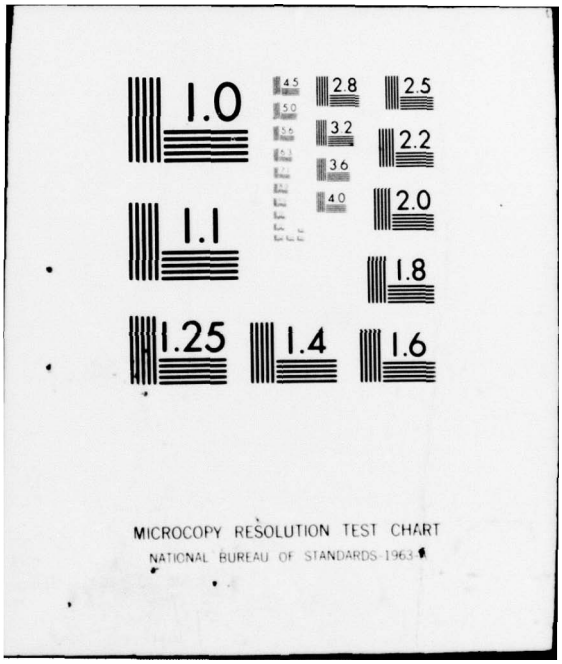
AD-A049 489 MAHIDOL UNIV BANGKOK (THAILAND) FACULTY OF PUBLIC HEALTH F/G 6/5
SURVEILLANCE OF DENGUE HEMORRHAGIC FEVER CASES IN THAILAND.(U)
1975 P GUNAKASEM, S JATANASEN DAMD17-76-G-9414

UNCLASSIFIED NL

1 OF 1
ADA049489

END
DATE FILMED
3-78
DDC


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

12

(6) Surveillance of Dengue Hemorrhagic Fever Cases in Thailand.

(9) Annual Progress Report 1974-1975,

(11) 1975

(12) 12p

By

(10) Pairatana Gunakasem, M. D.
Suchart Watanasen, M. D.
Chalam Chantarasri, B. Sc.
Phinit Simasathien M.D.
Sitipantu Chaiyanunta B. Sc.
William H. Bancroft, Ltc., M.C.
Robert McNair Scott, Ltc., M.C.

Supported By

US Army Medical Research and Development Command
Washington, D. C. 20314

(15) Contract No. DAMD 17-76-G-9414

(3) Faculty of Public Health
(1) Mahidol University,
(2) Bangkok, Thailand

Approved for public release; distribution unlimited

The findings in this report are not to be construed as an official Department of the Army position unless so designated by other authorized documents

New
410549

JOB

A

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER

2. GOVT ACCESSION NO.

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)
Surveillance of Dengue Hemorrhagic Fever Cases in Thailand.

5. TYPE OF REPORT & PERIOD COVERED
Annual Progress Report
1974 - 1975

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)
Pairatana Gunakasem, Suchart Jatanasen, Chalam Chaintarasri, Phinit Simasathien, Sitipantu Chaiyanunta, W.H. Bancroft, R. McN. Scott

8. CONTRACT OR GRANT NUMBER(s)
DAMD 17-76-G-9414

9. PERFORMING ORGANIZATION NAME AND ADDRESS
Faculty of Public Health
Mahidol University
Bangkok, Thailand

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
62759A
3A762759A831.00.108

11. CONTROLLING OFFICE NAME AND ADDRESS
US Army Medical Research and Development Command
Washington, D. C. 20314

12. REPORT DATE
1975

13. NUMBER OF PAGES
12 pages

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)

15. SECURITY CLASS. (of this report)
Unclassified

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)
Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Filter paper disc collection method
Dengue hemorrhagic fever
Hemagglutination inhibition testing
Japanese encephalitis
Hemorrhagic fever

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

B

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

JOB

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

The objective of this research was

OBJECTIVE: To provide laboratory confirmation of clinically diagnosed arbovirus infections reported to the Ministry of Health. In Thailand,

BACKGROUND: In the Kingdom of Thailand Dengue Hemorrhagic Fever (DHF) remains the greatest identifiable cause of hospitalization and death among children under the age of 15 years. Control of this mosquito-borne virus infection will require a knowledge of its prevalence and distribution. In 1973 a laboratory based serological surveillance program for DHF was initiated by the Ministry of Health to confirm reported clinically diagnosed Hemorrhagic Fever (HF). Adequate collection of blood samples was achieved in 1974. An earlier report contains the results from laboratory surveillance of DHF in 1973 and 1974 (1). The present report compares the results of laboratory surveillance over the years 1974 and 1975. In addition to surveillance for dengue infections, the program allowed the serological confirmation of other infections such as Japanese encephalitis (JE).

DESCRIPTION: The filter paper disc collection method and Hemagglutination Inhibition (HI) testing have been previously described (2). In 1973 acute and convalescent bloods from clinically diagnosed DHF patients were submitted for serological testing from sixty provincial hospitals throughout the Kingdom. Blood was submitted from an additional ten hospitals in 1974 and 1975 (Figure 1). Although the blood samples collected were rather unsatisfactory in 1973, good blood samples were obtained from all hospitals in 1974 and 1975.

PROGRESS: In 1975, 4,682 pairs of acute and convalescent dried blood spots on filter paper discs were submitted from provincial hospitals for DHF serological evaluation (Table 1). This represents a 164% increase over the 2,850 pairs submitted in 1974. During the same periods, however, the number of cases of clinically diagnosed HF reported to the Ministry of Health rose 215% from 8,160 cases in 1974 to 17,573 in 1975. The increased specimens received by the serological laboratory in 1975 probably reflected an increased incidence of disease and an increased participation in the surveillance program. Regional participation for 1975 is shown in Table 1.

Dengue virus infections were confirmed in 2,362 of the 4,682 patients or 55% of those studied in 1975. This is an increase from the 37% confirmation seen in 1974. The frequencies of confirmation are similar for the four of Thailand indicating similar clinical criteria for diagnosis of DHF in all areas. (Table 2). The distribution of the cases submitted and confirmed throughout the year peaked during the epidemic season from May through September similar to that seen in 1974. The proportion of laboratory confirmed cases of DHF for each month was essentially similar, indicating that the clinical diagnosis was not influenced by the time of year (Figure 2).

C

Laboratory confirmed dengue infections were compared by age for the four regions of Thailand (Figure 3). The median age of infection for patients tested from the whole Kingdom was six years. There was little difference in the median age for the four regions. A similar median age of infection from 70 provincial hospitals was found in 1974 and for clinically diagnosed patients in Bangkok between 1971 and 1973 (3). This suggested that similar epidemiologic factors influence attack rates in Bangkok and in Thailand as a whole.

DHF was misdiagnosed more often in the age group less than three years old (Figure 4). This may reflect the difficulty of precise diagnosis or perhaps a higher frequency of primary dengue infections in this age group. Primary dengue infections might not be identified by the testing methods employed. Laboratory confirmation of clinical diagnosis for age groups greater than three years is significantly higher in 1975 than in 1974 indicating either a better understanding of the criteria for diagnosis of DHF by the hospital physician or possibly improved case selection because of increased numbers of patients.

The incidence of HF may be calculated using the figures reported to the Ministry of Health. The incidence of confirmed DHF may be estimated using these figures and those developed by the laboratory surveillance program. The ratio of confirmed cases to clinically diagnosed cases rose in 1975 compared to 1974 (Table 3).

The methods employed for the laboratory confirmation of dengue infections were applied to the serological confirmation of JE cases. Acute and convalescent bloods were submitted on 349 clinically diagnosed cases of encephalitis seen in all regions of Thailand (Table 4). Forty percent or 129 cases were serologically confirmed as JE infections. The JE infections were found in all four regions of Thailand and occurred in all but the first two months of 1975.

DISCUSSION: A long-term surveillance of infection is one of the prerequisites for decision making in any control program. Such a program for DHF is presently active in Thailand and has confirmed approximately 50% of the reported cases of HF as due to dengue infection. Such a program will allow for the identification of the factors which influence epidemiologic patterns and allow for rapid implementation of control measures.

REFERENCES:

1. Gunakasem, P., Jatanasen, S., Bancroft, W. H., et al.: The SEATO Medical Research Laboratory Annual Report, March 1975

2. Top, F. H., Jr., Gunakasem, P., Chantarasri, C., et al.: Serologic diagnosis of dengue hemorrhagic fever using filter paper discs and one dengue antigen. Southeast Asian J. Trop. Med. and Pub. Hlth. 6: 18-24, 1974.

3. Bancroft, W. H., Snitbhan, R., Gunakasem, P., and Scott, R. M. : A Review of Two Systems for Reporting Cases of Hemorrhagic Fever. The SEATO Medical Research Laboratory Annual Report, March 1974.

Table 1. Cases Submitted for Laboratory Confirmation for Dengue Infection from Provincial Hospital, 1975

Regions	Clinical Diagnosis of Submitted Cases			Total Cases
	HF	PUO	NO Diagnosis	
North	500	0	14	514
Northeast	1798	13	80	1891
Central	1502	39	112	1653
South	601	2	21	624
Thailand	4401	54	227	4682

Table 2. Result of HI Tests for Dengue Infection in HF Patients Submitted from Provincial Hospital, 1975

Region	Number of Cases Submitted for Blood Test	Cases with Recent Dengue Infection	
		Number	Percent
North	464	270	58
Northeast	1776	944	53
Central	1488	867	58
South	554	281	50
Thailand	4282	2362	55

Table 3. Hemorrhagic Fever, Incidence Rate and DHF Specific Case Rate from Provinces of Thailand, 1975

Region	Reported Incidence Case Rate Per 100,000 Age 15 Years	DHF Specific Case Rate Per 100,000 Age 15 Years	DHF Specific Case Rate Per Incidence Rate	
			1974	1975
North	66.3	38.5	1:2.2	1:1.7
Northeast	90.0	47.8	1:2.5	1:1.8
Central	141.0	82.2	1:2.4	1:1.7
South	45.3	23.0	1:2.4	1:1.9
Thailand	90.5	50.4	1:2.4	1:1.7

Table 4. Japanese Encephalitis Infection in Clinical Encephalitis Cases from 70 Provinces of Thailand, 1975

Region	Total Case Tested	Number of JE Infection	
		Number	Percent
North	116	27	23
Northeast	137	45	33
Central	92	57	62
South	4	0	0
Thailand	349	129	40

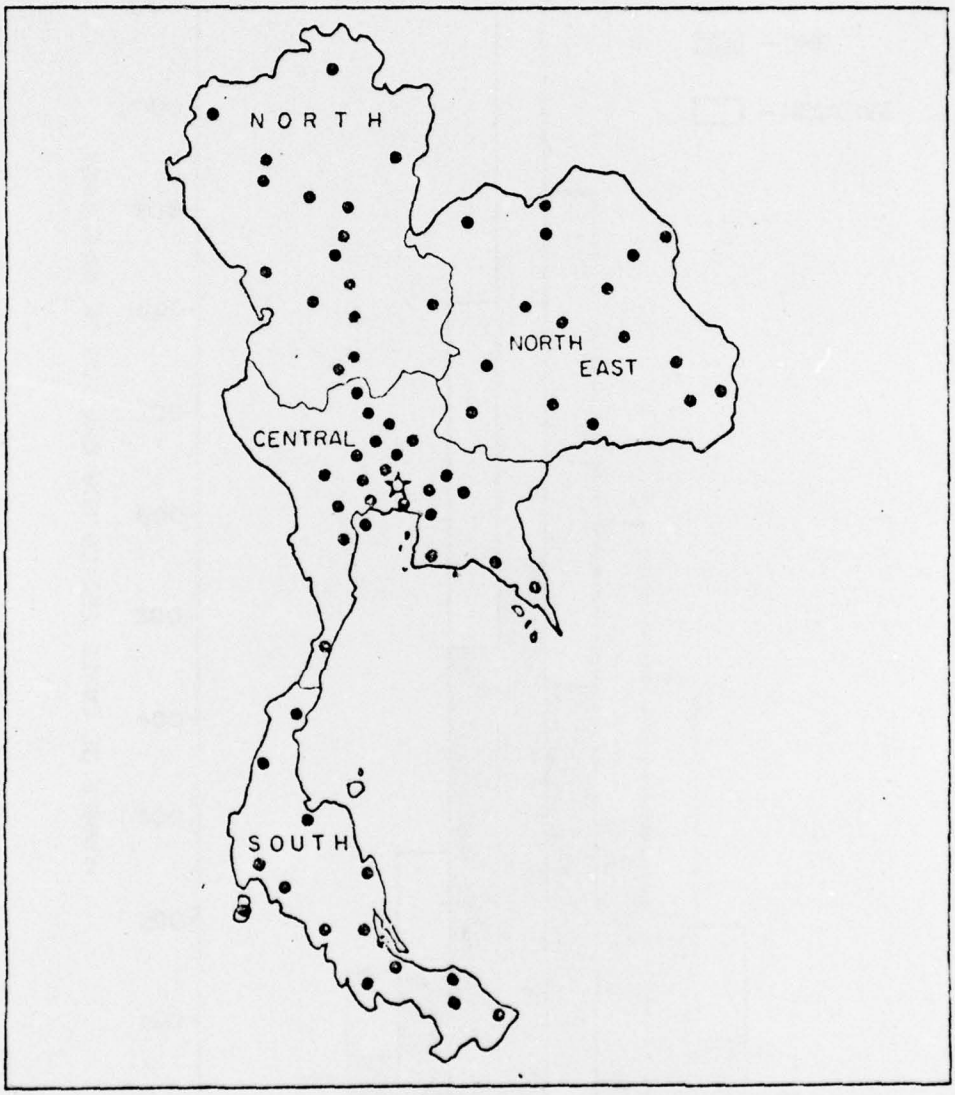


FIGURE I. MAP DEMONSTRATING PROVINCES OR TOWNS OF STUDY (●) 1975

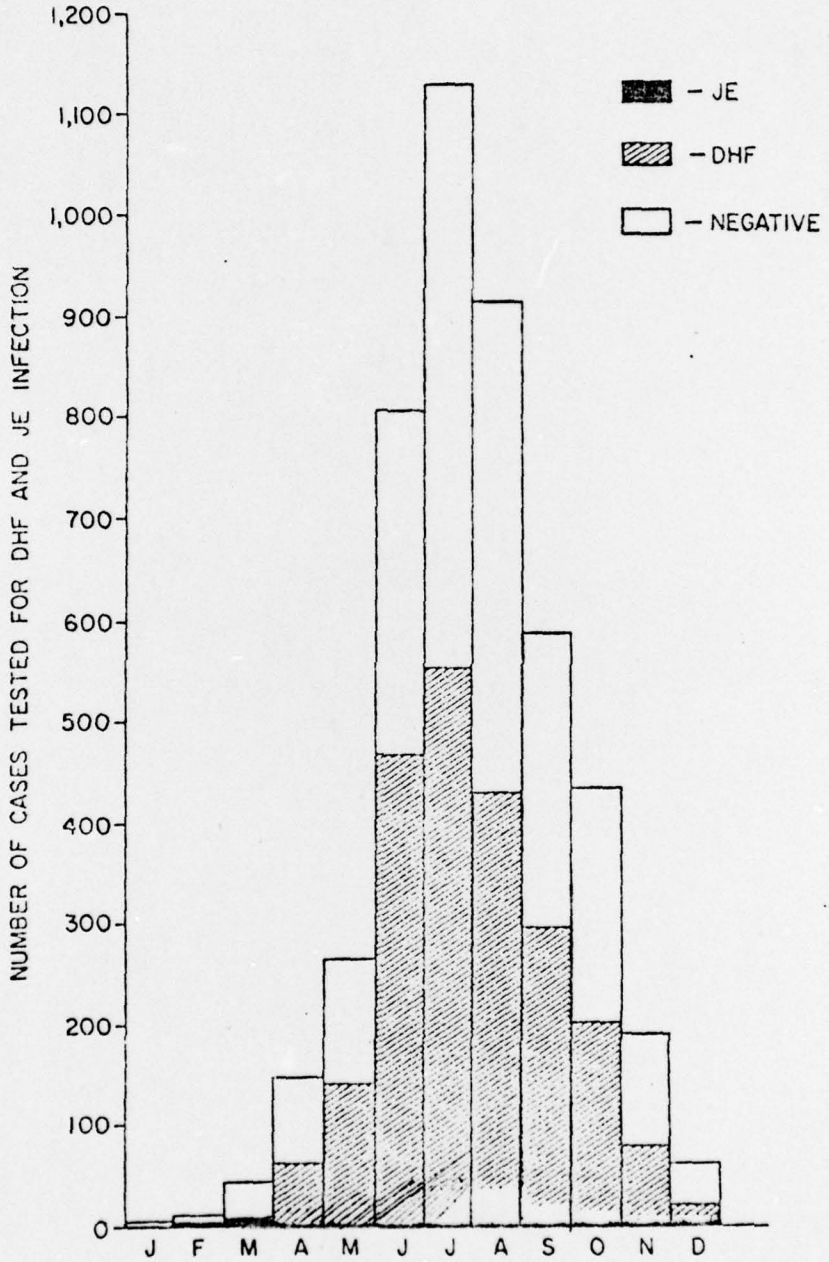


FIGURE 2. MONTHY LABORATORY CASE CONFIRMATION FOR DHF AND JE INFECTION IN PROVINCES OF THAILAND, 1976

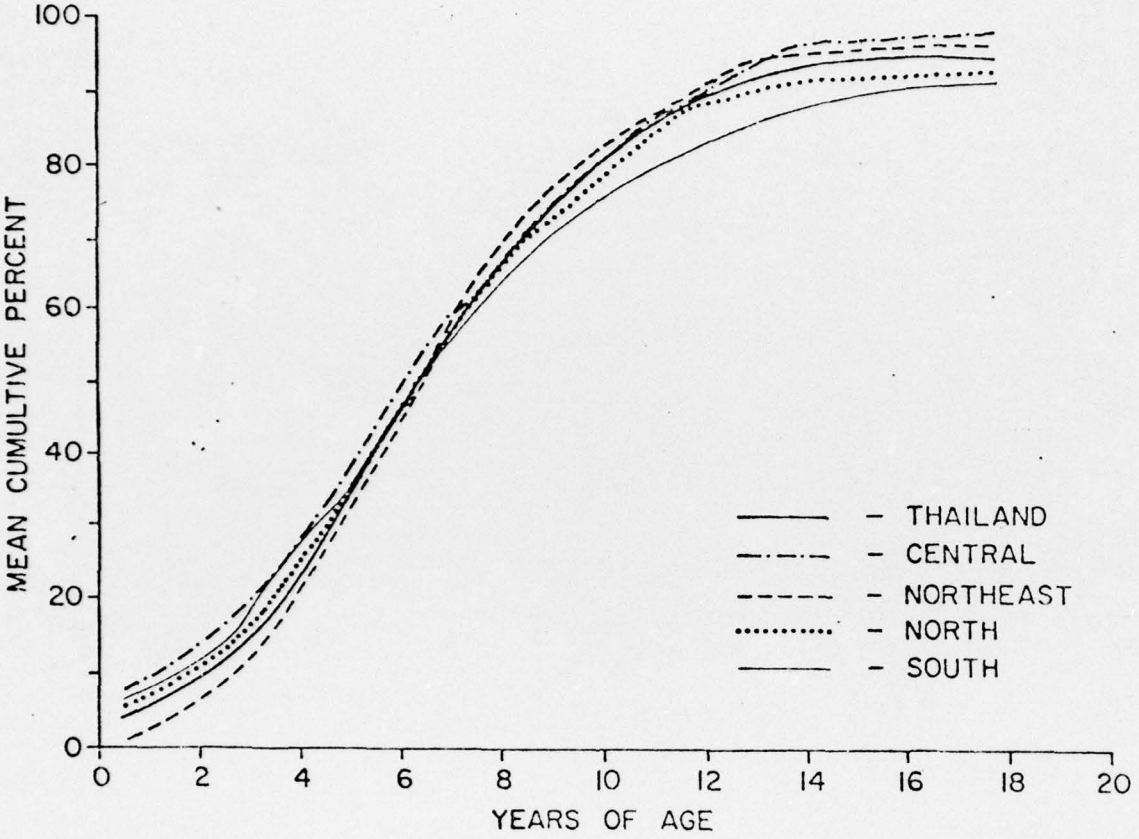
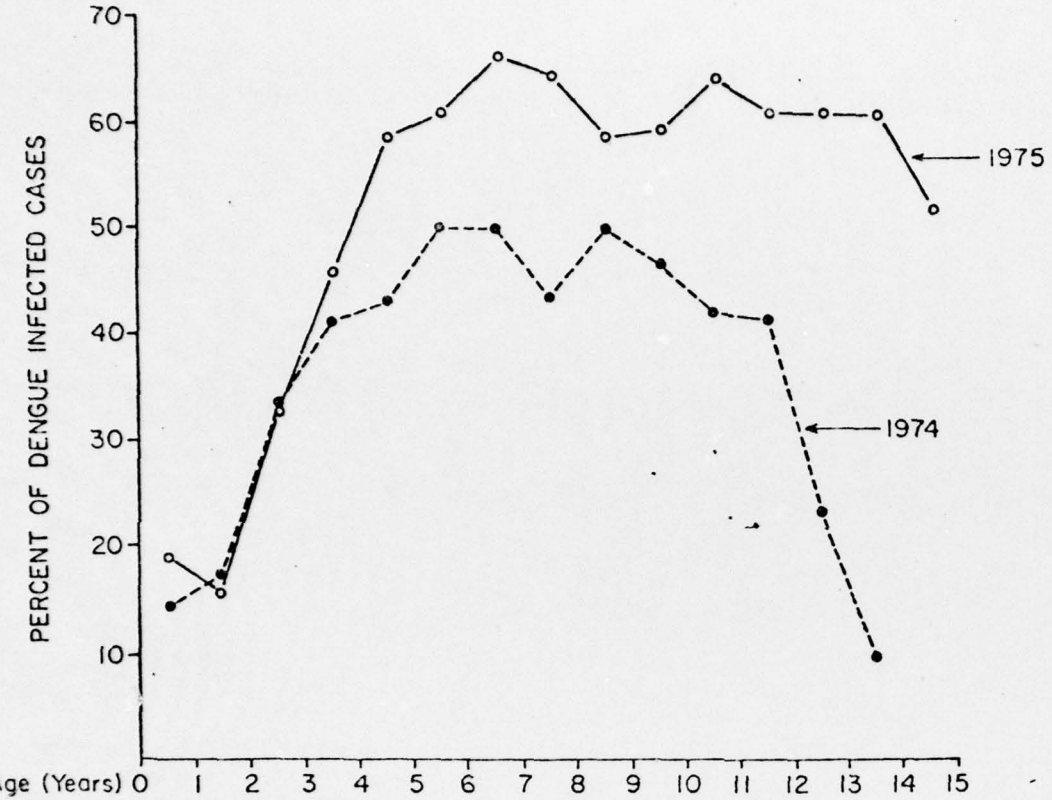


FIGURE 3. AGE DISTRIBUTION OF DHF SFECIFIC CASES (LABORATORY CONFIRMED) IN PATIENTS HOSPITALISED WITH HEMORRHAGIC FEVER IN PROVINCIAL HOSPITALS IN THAILAND, 1975.



Number of Patients	(1975)	177	172	220	367	444	512	535	468	372	288	255	184	165	91	32 (Total 4282)
	(1974)	205	203	262	257	277	275	237	184	154	154	103	87	55	25	4 (Total 2478)

FIGURE 4. DENGUE INFECTED CASE RATIO IN EACH AGE GROUP AMONG CASES SUBMITED FOR TEST FROM PROVINCIAL HOSPITALS IN THAILAND, 1974 AND 1975

R U

4 copies	HQDA (SGRD-AJ) Washington, D. C. 20314
12 copies	Defense Documentation Center (DDC) ATTN: DDC-TCA Cameron Station Alexandria, Virginia 22314
1 copy	Dean School of Medicine Uniformed Services University of the Health Sciences 4301 Jones Bridge Road Bethesda, Maryland 20014
1 copy	Superintendent Academy of Health Sciences, US Army ATTN: AHS-COM Fort Sam Houston, Texas 78234